

Sustainable Forest Management at the Local Scale: A Comparative Analysis of Community Forests and Domestic Forests in Cameroon

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Abstract In Cameroon, community forests are frequently presented as a relevant option to increase the welfare of rural populations and simultaneously improve local governance and forest resources conservation. But apart from community forests, rural livelihoods also depend on forest areas, designated as ‘domestic forests’ in this article, where local users enjoy informal customary rights. The specific contributions of community and domestic forests to the evolution of the prevailing socio-ecological system are assessed through a diachronic study of a village which is located in southern Cameroon. The Sustainable Livelihoods Framework is used to compare the progress of this social-ecological system between January 2008 and December 2009. The overall evolution of livelihoods was found to be positive during that period. In this case study, domestic forests and community forests are based on complementary models, which are often observed in southern Cameroon. Domestic forests constitute the basis of socio-economic development, while community forests might offer opportunities for a local-level carbon sequestration payment mechanism.

Keywords Customary tenure · Sustainable Livelihoods Framework · Congo Basin

Introduction

The forests of southern Cameroon have been populated for several centuries, although the population density has remained low (Deschamps 1970; Obenga 1989).

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Nowadays most forest areas endorse some form of possession (Diaw and Oyono 1998; Lescuyer and Emerit 2005). Land and forest tenures are characterised by a mix of more or less explicit rules, the legitimacy and enforcement of which are determined by (1) the types of customary or formal rights, that generally make a distinction between access, withdrawal, management, exclusion and alienation (Schlager and Ostrom 1992; Le Roy et al. 1996), (2) the rights holders, ranging from single individuals to large groups (Diaw 1997; Lescuyer 2006), and (3) the types of resources found in the forest, e.g. game, trees, and non-timber forest products (NTFPs).

Traditional rights are applied over areas that local people regard as theirs by custom. These areas are often referred to as village '*terroirs*' (Le Roy et al. 1996; Karsenty et al. 1997). A village *terroir* is composed of a mosaic of areas utilized at various levels of intensity by land occupants, from residential areas to crop zones and to forest ecosystems (Carrière 2003; Robiglio and Sinclair 2011). In the Congo Basin, most of the *terroirs* are covered by forests, which are subjected to material investments and symbolic possession by a human group which assumes customary rights over the land and the associated resources. Michon et al. (2007) used the term of a 'domestic forest' to describe this area. customary rights associated with domestic forests are recognised in Cameroonian legislation: in the absence of any specific regulatory provision, forest areas are used according to customary rights, which are defined and implemented by the communities, insofar as they follow the principles of the national regulations.

Traditional domestic forest management in Cameroon changed in 1994 as a result of the introduction of Law No. 94/01 to lay down forestry, wildlife and fisheries regulations (hereafter called the *Forestry Law*). Customary rights were restricted to subsistence use of forests; trade in forest products became no longer authorized without an individual permit from the government. The State has retained ownership of all forestlands and can impose formal modes of management, including logging concessions and declaration of national parks, that supersede local customary rights. When this occurs, the domestic forest becomes a 'permanent forest estate' that is used primarily to fulfill financial and ecological objectives at the national scale. Informal domestic forests can be converted, at least partly, into formal community forests. There are two obvious benefits for the communities: local use rights are recognized and formalized in the simple management plan (SMP) while customary rights remain informal, and the possibility exists of selling timber and other forest products obtained from the community forest whereas customary rights are limited exclusively to subsistence. But a community forest may not exceed 5,000 ha while a domestic forest may be and usually is much larger. The result is that community forests usually only cover a small part of what communities consider as their forest.

In Cameroon, the community forest is considered the most complete application of forest management devolution to local people (Julve et al. 2007; Ezzine et al. 2009). In theory, a community forest should achieve three objectives (Bigombe Logo 2004; Oyono et al. 2006): it should increase welfare for rural populations, conserve forest resources and biodiversity, based on local knowledge and management skills, and improve local governance through the transfer and democratic implementation of management authority.

The transformation of a domestic forest into a community forest requires a change in the local rights of access and use of forest resources. The change is confirmed in the SMP, which operates for 25 years—with possible renewal—in accordance with the standards of an official framework established by the forestry administration. The SMP usually restricts various customary rights, these being replaced by formal rules of access and use of resources in the community forest. These restrictions can be substantial. (Essoungou Kwack 2010) reviewed 55 SMPs approved by the Ministry of Forestry—21% of all the SMPs existing in 2009—and assessed the limitations imposed on five types of customary rights: hunting, fishing and agriculture, extraction of NTFPs, harvesting of timber and fuelwood. About 68% of the sampled SMPs regulated hunting and 62% restricted fishing practices in order to prevent commercialization and prohibit destructive fishing techniques. Agriculture is regulated in only 51% of sampled SMPs: it is either prohibited or authorized but without the possibility of extension. The collection of NTFPs is controlled in 43% of the sample while timber and fuelwood collection is controlled in 32%.

In the forest zone of Cameroon, domestic forests are often covered partly by permanent forest estates or community forests. In June 2011, out of the total forest area of 22.5 M ha, 7.7 M ha were designated logging concessions, 4.3 M ha were located in protected areas and 1.5 M ha were granted as community forests. This caused major changes in the legal exercise of customary rights. Table 1 illustrates how customary rights of access and of harvesting timber for personal use in a domestic forest are modified when the area is located in a logging concession, a protected area or a community forest. While customary users keep the individual right to harvest and sell trees in their domestic forest, the community forest permits only timber selling for the benefit of the whole community. Similarly, when a domestic forest is converted in a logging concession, individual use rights on timber remain but they are restricted to withdrawal for self-consumption. Lastly, changing a domestic forest into an official protected area prevents customary right-holders from extracting any resource but authorizes anybody to access this area, for instance for ecotourism.

Officially, logging concessions and protected areas are managed by the State, but the State concedes logging concessions to private companies. The purpose of State management is to maximize revenue from timber harvesting and to ensure biodiversity conservation at the national scale, even at the expense of local

Table 1 Change of the customary use rights of timber for personal purpose

Rights holder	Customary rights				
	<i>Access</i>	<i>Withdrawal</i>	<i>Management</i>	<i>Exclusion</i>	<i>Alienation</i>
Open access	Protected area				
A group of users					Community Forest
An individual user		Logging concession			Domestic Forest

customary rights. By contrast, community forest is presented as an opportunity for local people to sustainably and formally manage their forests. However, the community forest model imposes a collective management of forest resources, while the traditional domestic forest model allows individuals—who belong to larger social groups including lineages—to manage and use many of the resources including timber and NTFPs.

The decision to create a community forest has local consequences that are usually not assessed retrospectively nor compared with a ‘business as usual’ scenario describing the socio-economic development that would have prevailed in a domestic forest. This article estimates and compares the contributions of a community forest and a domestic forest to the sustainable development of one local socio-economic system that is located in the forest zone of southern Cameroon. The case study is introduced in the next section. Impacts on the local livelihood system are analyzed within the Sustainable Livelihoods Framework and the methods used to estimate the assets that support rural livelihoods are described. Rather than considering land and other classical wealth indicators, the Sustainable Livelihoods Framework suggests consideration of a portfolio of five types of assets (Chambers and Conway 1992; Scoones 1998): (1) *Natural capital*, i.e. the natural resource stocks and environmental services from which resource flows and services useful for livelihoods are derived; (2) *Physical capital*, i.e. the capital base that is essential for the pursuit of any livelihood strategy; (3) *Financial capital*, i.e. savings, credit and other inflows; (4) *Human capital*, i.e. the skills, knowledge, good health and physical capability needed for the successful pursuit of livelihood strategies; (5) *Social capital*, i.e. the social resources upon which people draw when pursuing livelihood strategies requiring coordinated actions. Indicators based on the capital assets framework have been widely used by development practitioners to capture the diversity of livelihood values within geographically defined areas (Bebbington 1999; FAO 2006).

The chronological evolution of the five types of capital is then outlined, distinguishing the contributions from the community forest and the domestic forest. Finally, the relative merits of these two forms of local forest management in southern Cameroon are compared.

The Study Area

The study area is situated in the southern part of Cameroon, where timber logging is the major formal economic activity. Agriculture is practiced by rural populations in villages along the forest roads. The average population density is about 10 persons/km² (de Wasseige et al. 2009). Agriculture relies on slash-and-burn cultivation, primarily for subsistence but with some cash crops produced, including cocoa and plantain, to feed major cities and for export. This forest area is still largely inaccessible by road (Mertens et al. 2007).

The research was conducted in the village of Nkolenyeng that is situated in the extreme southern part of Cameroon, close to the border with Gabon. It is a medium-size village (pop. 320, divided into 38 households) of the Fang ethnic group. Its economy is heavily dependent on agriculture and forest resources, which provide

insufficient income to raise household living conditions above the poverty level (Lescuyer 2010). By its size, the incomes of its inhabitants, its dependence on natural resources and its proximity to forest areas, Nkolenyeng is representative of isolated rural areas of southern Cameroon (Santoir and Bopda 1995). Most of the economic activities are carried out at the scale of the village *terroir*. This area has undergone two important changes over the last decades. First, in 1995 the National Zoning Plan transformed two substantial parts of this forestland into a logging concession and a protected area. Second, a community forest was granted in 2001 for an area of 1,022 ha (Fig. 1). Consequently, this domestic forest was divided into four blocks: (1) the timber concession granted by the state to a private logging company, an area of about 3,000 ha located north of the village, (2) the protected area to the south of the village, an area of about 2,000 ha, (3) the community forest, managed according to a SMP validated by the state, and (4) the residual domestic forest, mainly in the neighbourhood of the village, which is managed according to custom. This agricultural area, of about 1,000 ha, is farmed mainly using the slash-and-burn method.

Following forestry regulations, the village of Nkolenyeng established a formal community forest management association, the Association des Femmes et des Hommes Amis de Nkolenyeng (AFHAN), which wrote the SMP according to the national standard, with the help of a national NGO (Poissonnet et al. 2006). The SMP sets out the formal uses of forest resources: (1) small-scale exploitation of timber; (2) maintenance of agricultural activities already located in the community forest, but without the possibility of extension—shifting cultivators must rely on old fallows to rotate their agricultural plots; (3) hunting with traditional techniques and only for subsistence; (4) maintaining the NTFP gathering activity, except for moabi (*Baillonella toxisperma*) and essezan (*Ricinodendron heudelotii*) which are protected species; and (5) reforestation of previously harvested plots.

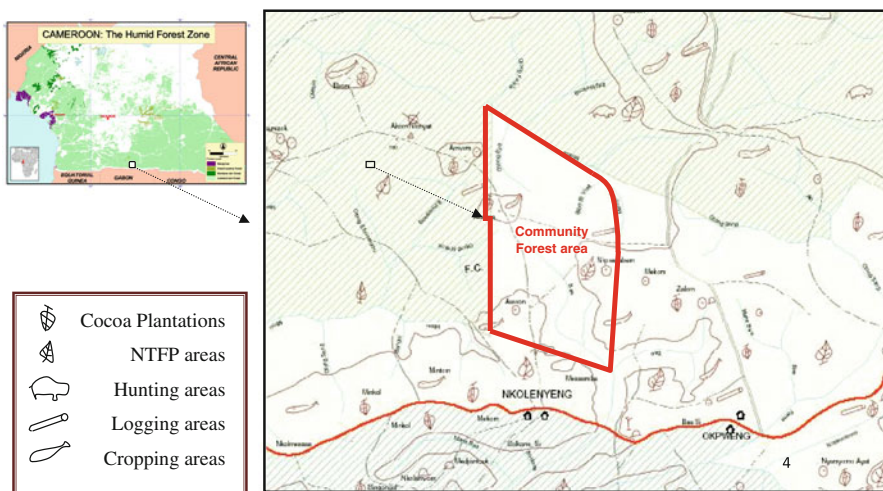


Fig. 1 Location of the Nkolenyeng community forest

The main objective of this community forest is commercial logging, which is supposed to generate local income through wages and collective investments in village infrastructure. According to the SMP, the maximum timber harvest is 840 m³ per year on a 40 ha area. Up to now, only a small part of the volume has been taken: between 2005 and 2008, the annual harvest did not exceed a few dozen cubic metres, mainly of ayous (*Triplochiton scleroxylon*) and tali (*Etythroleum suaveolens*) species. The Nkolenyeng community forest timber was sold to foreign buyers, who were identified and contacted by the supporting NGO. The same NGO also promoted timber processing using a mobile sawmill that was shared with three other community forests to reduce the investment costs. The community forest managers in Nkolenyeng felt that these commercial and technical arrangements were complicated and costly: logging was stopped in late 2008 due to lack of orders from foreign buyers and insufficient profit. No thought was given to selling timber on the domestic market at that time although the market was quite active, due to the conservation or 'green market' orientation of the supportive NGO (Cerutti and Lescuyer 2011). However, the NGO offered to start a pilot forest conservation activity in order to benefit from a reducing emissions from deforestation and forest degradation (REDD) mechanism. This idea was accepted by AFHAN.

Research Method

The influence of local forest management on livelihoods was studied through a capital assets framework. The set of criteria and indicators was established for the Nkolenyeng village in three phases: (1) the inhabitants of Nkolenyeng and of neighbouring villages were asked to design indicators that define a sustainable management of their forest (Tiani and Bonis-Charancle 2007); (2) these indicators were compared with the ones established in similar studies conducted in Central Africa (Sayer et al. 2007; Endamana et al. 2010); (3) the selection of the most adequate indicators for Nkolenyeng was made by a restricted focus group including the village chief, the main enumerator and two family leaders. As usual in the Sustainable Livelihoods Framework, each asset and each related indicator was given equal weight.

Three surveys were conducted between January 2008 and December 2009 to qualify and quantify these indicators. The first two surveys were conducted with a sample of 22 households (58% of the total households in the village) that agreed to collaborate, but several households moved away from the village during the survey period or decided to stop participating during the first or second survey. These households have been removed from the database.

The first survey collected data on which to estimate the harvesting level of natural resources (wildlife and NTFPs) on the basis of a weekly questionnaire administered to 15 households (40% of the total households in the village) throughout 2008 which was replicated during the 4 weeks of December 2009. This first questionnaire sought data on all forest products extracted during the previous week by all household members.

The second questionnaire—on the income earned during the previous week—was completed by 20 households (52% of the total number of households) at the same frequency over the same periods of time. Whenever possible, the questionnaires were filled in by all household members, including children.

From January 2008 to December 2009, a third questionnaire was completed quarterly by a local enumerator for the variables that describe the status and effectiveness of the village facilities at the time of the survey. This periodic diagnostic was supplemented by individual semi-structured interviews with the three community forest managers, the village chief and the four heads of extended families to investigate the state of village organizations and the level of conflict about the use of natural resources.

Data from the household surveys were recorded in Microsoft Access databases, and the descriptions of the village facilities were reported in a Microsoft Excel file. Discussions with the local enumerator and the Nkolenyeng village chief helped determine the minimum and maximum levels for each variable: this information was used to design the basis for encoding collected data and their conversion into scores ranked between 1 and 5 for the assessment of capital (Table 2).

Results

The first result was the assessment of the improvement in rural livelihoods between January 2008 and December 2009, and the respective contributions of the community forest and the domestic forest to the progress of local livelihoods.

Analysis of Livelihood Changes

All data collected between January 2008 and December 2009 in the village of Nkolenyeng were synthesized and grouped in a single matrix (Table 3). Three periods during the dry season were chosen in order to avoid having to compare activities specific to the rainy and dry seasons.

Radar diagrams are used to present results of the capital assets analysis (Fig. 2). Each of the five axes represents an item of capital for which the average score of the indicators characterizing the specific item is reported. This type of presentation does not report the value of each indicator, but gives the average score of the five types of capital assets. The radar diagrams provide a compact representation that is useful in making a diachronic analysis of the level of livelihoods.

Livelihoods in Nkolenyeng underwent four types of change. First, the increase of natural capital was supported by the end of (informal and legal) logging in 2009, i.e. by complete conservation of timber resources at least in the community forest, and by the stable level of the game and NTFP harvest, which indicate the continued availability of these forest resources. However, assessing more accurately the evolution of plant and animal populations would require monitoring over the long term. Second, the increase in the number of teachers and training courses offered by outside agencies boosted social and human capitals. Third, there was a slight increase in physical capital: this was mainly due to a relative improvement in road

Table 2 Description of indicators used in scoring the capital asset criteria

Asset and its indicators	Unit of measurement	Score				
		5	4	3	2	1
Natural capital						
Game hunting level	Number of game taken during a 1 h hunting period	[1; 2]	[0,8; 1]	[0,5; 0,8]	[0,3; 0,5]	[0; 0,3]
NTPF gathering level	Number of NTFP collected during a 1 h period	[10; 20]	[5; 10]	[3; 5]	[2; 3]	[0; 2]
Timber (informal) from domestic forest	Number of cut stems over the latest quarter	0	1	[2; 3]	[3; 5]	[5; 10]
Timber (legal) from community forest	Cubic meters over the latest quarter	0	[1; 5]	[5; 15]	[15; 30]	[30; 50]
Financial capital						
Individual households revenue	Average monthly revenue (thousands of CFA Franc)	[100; 200]	[70; 100]	[50; 70]	[30; 50]	[0; 30]
Access to credit	Number of funding organizations	4	3	2	1	0
Local trade	Number of markets per week	4	3	2	1	0
Collective profit	Net benefit for AFHAN over the latest month (thousands of CFA.F)	[300; 500]	[200; 300]	[100; 200]	[50; 100]	[0; 50]
Physical capital						
State of the road	Villagers' perceptions	Very good	Good	Acceptable	Poor	Very poor
Frequency of transportation	Daily opportunities to travel (by bus, car, motorcycle)	[25; 50]	[20; 25]	[15; 20]	[5; 15]	[0; 5]
Access to potable water	Number of operating water pumps	4	3	2	1	0
Collective buildings	Number of operating public buildings (guards' room, church)	[15; 20]	[10; 15]	[5; 10]	[2; 5]	[0; 2]

Table 2 continued

Asset and its indicators	Unit of measurement	Score				
		5	4	3	2	1
Communication facilities	Number of radio stations	[10; 15]	[8; 10]	[5–8]	[2; 5]	[0; 2]
Shops	Number of (open) shops	[5; 10]	[4; 5]	[2; 4]	[1; 2]	0
State of individual houses	Percentage of houses with an iron roof (%)	100	90–100	80–90	70–80	50–70
Electricity	Number of (working) generators	[10; 15]	[8; 10]	[5–8]	[2; 5]	[0; 2]
Equipment	Number of (working) chainsaws	[10; 15]	[8; 10]	[5–8]	[2; 5]	[0; 2]
Human capital						
Population size	Number of permanent inhabitants	[400; 450]	[350; 400]	[300; 350]	[250; 300]	[200; 250]
Effectiveness of dispensary	Availability of medicine and presence of nursing staff	2 Nurses and medicine	1 Nurse and medicine	1 Nurse without medicine	Medicine without nurse	No nurse, no medicine
School	Number of teachers	[6; 8]	[5; 6]	[3; 5]	[2; 3]	[0; 2]
Training	Number of training workshops over the latest quarter	[6; 8]	[5; 6]	[3; 5]	[2; 3]	[0; 2]
Social capital						
Grassroots organizations	Number of (operating) village organizations	[6; 8]	[5; 6]	[3; 5]	[2; 3]	[0; 2]
Involvement in CF management	Number of active members of the association in charge of the CF	[15; 20]	[10; 15]	[5; 10]	[2; 5]	[0; 2]
Conflicts	Number of conflicts related to forest resources over the latest month	0	[0; 2]	[2; 5]	[5; 8]	[8; 15]

Table 3 Assessment of the capital assets criteria for Nkolenyeng in January 2008, December 2008 and December 2009

Asset and indicators	January 2008		December 2008		December 2009	
	Data	Score	Data	Score	Data	Score
Natural capital						
Game hunting level	0.29	1	0.54	3	0.54	3
NTFP gathering level	4.33	3	4.34	3	4.34	3
Timber (informal) from domestic forest	31.8	1	18.3	2	0	5
Timber (legal) from community forest	1	4	0	5	0	5
Financial capital						
Individual households revenue (CFA.F)	48,075	2	57,080	3	57,080	3
Access to credit	1	2	1	2	1	2
Local trade	1	2	1	2	1	2
Collective profit (CFA.F)	390,500	5	34,000	1	100,000	2
Physical capital						
State of the road	Poor	2	Very poor	1	Average	3
Frequency of transportation	18	3	12	2	21	4
Access to potable water	1	2	0	1	1	2
Collective buildings	8	3	8	3	8	3
Communication facilities	3	2	3	2	3	2
Shops	1	2	4	3	3	3
State of individual houses	73	2	73	2	77	2
Electricity	3	2	4	2	8	4
Equipment	3	2	4	2	2	2
Human capital						
Population size	268	2	268	2	320	3
Effectiveness of dispensary		1		2		3
School	2	2	3	3	4	3
Training	4	3	1	1	5	4
Social capital						
Grassroots organizations	4	3	3	3	3	3
Involvement in CF management		2		2		2
Conflicts	1	4	2	3	0	5

conditions and an increased number of private means of transport. Fourth, a decrease took place in financial capital: this was due to lower revenue from logging in the community forest.

Contribution of Community and Domestic Forests to Natural Capital

Domestic forests and community forests contribute to the overall improvement of local livelihoods. The improvement of the natural capital level between early 2008 and late 2009 reflects two trends. First, the end of logging has been enforced both

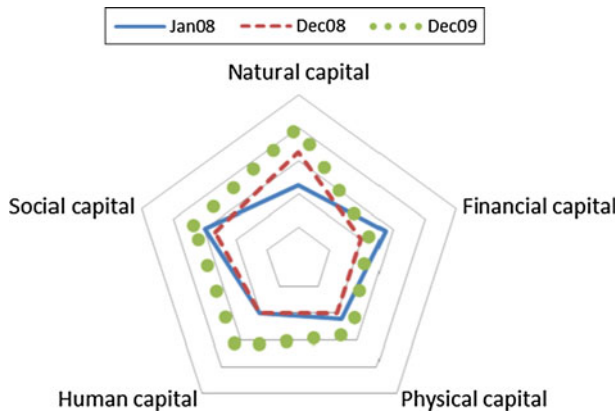


Fig. 2 Capital assets scores in January 2008, December 2008 and December 2009

inside and outside of the community forest. Inside the community forest, the community voluntarily chose to cease this unprofitable activity, given the technical difficulties of maintaining the mobile sawmill and the irregular contacts with private buyers. Outside the community forest, the pressure of the village chief on individual chainsaw millers persuaded them to move their activities to other villages where timber resources were relatively less controlled and closer to markets.

The increase in the productivity of hunting and gathering also reflects the improvement of natural capital. This is illustrated by data on forest products extraction by the 15 sample households monitored in 2008 (Table 4).

The contribution of community forest to NTFP extraction is close to the contributions of other land use types. It mainly involved palm (*Elaeis guineensis* and *Raphia farinifera*) wine and white worms (*Rynchophorus phoenicis*) extracted from the marshlands near the village. By contrast, the community forest played an important role in hunting, probably because of the heterogeneity of the ecosystem that was suitable for combining various types of hunting, e.g. snaring for small game around or near the food crop fields, and shooting in the forest environments. Most of the large game (*Cercopithecus* sp. and *Cephalophus* sp.) was hunted in areas dominated by forestland, i.e. the logging concession and the protected area. These practices are formally forbidden in the protected area and are restricted to

Table 4 Intensity of hunting and NTFP gathering practices in various land-uses (January–December 2008)

Number of trips	Community forest	Domestic forest–not gazetted	Logging concession	Protected area
For NTFP collection	410	274	328	356
Relative frequency (%)	(30)	(20)	(24)	(26)
For hunting	321	36	167	71
Relative frequency (%)	(54)	(6)	(28)	(12)

subsistence purposes only in the logging concession, but are accepted by customary rules.

Overall, the contribution of community forest to natural capital was substantial for hunting, moderate for timber extraction and modest for NTFPs. Sustainable resource management practices explained the growth of natural capital in both the community forest and the domestic forest.

Contribution of Community and Domestic Forests to Financial Capital

The end of logging in the community forest meant a loss of collective investments in village infrastructure and less income from the community forest for individual villagers. Weekly monitoring information on incomes and the localization of income-generating activities are used in Table 5 to show the average annual household income and its distribution among the main categories of income.

Only wages from timber exploitation could be directly attributed to community forest implementation, at least until end 2008 when this activity was abandoned. A small percentage of farm income also came from fields within the community forest. About 15% of total household income in Nkolenyeng came from exploitation of the community forest area and 53% from activities carried out in the domestic forest. Although income-generating activities in the gazetted forests are forbidden by law, they nonetheless accounted for about 7% of the total household income. The increase of financial capital depended mainly on activities carried out in the domestic forest.

Table 5 Average annual income per household in 2008

Income category	Income (€)	Relative frequency (%)	Originating from community forest (€)	Originating from domestic forest (€)	Originating in concession and protected area (€)
Shifting cultivation	1,393	65.6	209	1,079	105
Hunting	43	2.0	22	6	15
NTFP	54	2.6	17	14	23
Fishing	4	0.2	2	1	1
Local trade	73	3.4	NR	NR	NR
Other commercial activities	293	13.8	NR	NR	NR
Wage from agricultural activities	38	1.8	6	30	2
Wage from timber exploitation	56	2.7	56	0	0
Interests from savings, gifts	167	7.9	NR	NR	NR
Total	2,121		312	1,130	146

NR not relevant

Contribution of Community and Domestic Forests to Physical Capital

The low rate of progress for physical capital at Nkolenyeng is explained by the weak progress in village infrastructure. Revenue from the community forest did not suffice to pay for major improvements of public buildings, or for better access to water and individual housing. The increase in the number of electricity generators and the improved means of transport came from individual investments unrelated to the community forest. These investments were funded mainly by revenue from agriculture in the domestic forest.

Contribution of Community and Domestic Forests to Human and Social Capital

The creation of the community forest required the creation of a formal community forest management association, the AFHAN. The board membership for AFHAN has remained unchanged for several years, and members of the board now enjoy a strong reputation, particularly among the agencies that promote community forestry in Cameroon. The Nkolenyeng community forest has almost become a benchmark location: numerous NGOs, research institutions and government agencies sent representatives to visit this community forest and then funded various workshops and micro-projects. The improvement of human and social capital at Nkolenyeng can be traced to the sound reputation of this community association, even though it did not have all the attributes of good governance, particularly in terms of accountability (Poissonnet et al. 2006). On the other hand, extractive practices in the domestic forest were regulated by customary institutions and did not require any formal innovative arrangements.

Discussion and Conclusion

The analysis of livelihood change at Nkolenyeng reveals that the community forest has contributed marginally to village socio-economic development, in contrast with the expected positive outcome of community forestry in Cameroon. Three major lessons can be drawn from this case study, which are confirmed by other studies on community forests in Cameroon.

First, the official restriction to the customary use rights related to the State's establishment of a logging concession in a protected area remains ineffective in practice because local users are still engaged in agriculture, hunting and NTFP extraction for commercial purposes, i.e. carrying out activities that are authorized under their customary rules but officially forbidden. The diagnosis is similar for the community forest where many individual activities generate personal income although these forest resources are supposed to be managed primarily for the collective benefit of the community, as described in the SMP. In these formally managed forests, the limitation of local use rights is seldom enforced and does not strongly influence the decisions of the customary rights holders (Lescuyer et al. 2011). Because formal regulations have little effect on customary rights, the local users are not persuaded to differentiate their practices according to their

geographical position, i.e. inside the logging concession, the protected area, the community forest or the residual domestic forest. Timber logging is probably an exception because it was not carried out in the community forest by single individuals, although authorized by customary rules. The desire to conserve timber in the community forest, however, may convince users to exploit these resources elsewhere in the village *terroir*. This ‘leakage’—preserving timber resources in its community forest while moving timber harvesting outside its community forest—is a common outcome: several case studies have demonstrated that part of the community forest timber actually came from areas outside the community forest (Castadot 2007; Ndume Engone 2010). Even when the SMP is enforced, local factors that contribute to the development of livelihoods must be analyzed at the scale of the village *terroir*, i.e. the original domestic forest where all village practices continue to be carried out.

In Nkolenyeng, as more broadly throughout Cameroon (Akoa Akoa 2007; Lescuyer 2007; Ezzine de Blas et al. 2009; Beauchamp and Ingram 2011), the community forest contributes only marginally to the economic and infrastructure development of the village and its inhabitants. Many factors reduce the economic impact of this management system when it is practiced in compliance with the law, e.g. the small authorized annual logging area, the unfamiliarity of local organizations with international timber markets, and the obligation to use community forest income in collective investments. However, the domestic forest still provides the basic framework for economic activities in the rural areas; in particular it provides for the extension of individual or family agriculture, and facilitates trade in crop products in accessible, dynamic markets. Agriculture will remain, at least in the medium term, the safest option for increasing the level of income in these isolated forest areas. Although shifting cultivation areas usually expand at the expense of forests and therefore depend partly on forestry regulations, agriculture remains first of all influenced by economic dynamics that are extraneous to forest policy, such as changes in agricultural products’ prices and the adoption of new technology. The level of development in these rural areas depends mainly on policies unrelated to forests that influence the way natural resources are used in the domestic forests (Sunderlin et al. 2000; Endamana et al. 2010).

Even if the community forest does little nowadays to increase the community’s physical and financial capital, it can provide an opportunity to improve the social and human capital. This requires, first, establishing permanent links and investing in lasting relationships with external partners, and second, organizing internal discussions under the supervision of a local but formal organization in order to establish the forest uses in the community forest area and to plan collective investments. Capacity building within the community opens up new opportunities, including better management of other forest revenues and easier access to development and conservation partners. The village of Nkolenyeng provides an example of such an increase in social capital: with support from external partners, it has been experiencing the first local REDD scheme in Cameroon (Neale et al. 2010). This project could not have taken place without the prior existence of the community forest and, subsequently, the unwavering support of a NGO. In these forest areas, the domestic forest offers the most reliable opportunities for socio-

economic development, but the community forest remains an option that would become essential were REDD to be implemented at the local level in Central Africa.

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